

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

BARTH, Carl, Otto  
Barth & Partner  
Zürichstrasse 34  
CH-8134 Adliswil  
SUISSE

Date of mailing (day/month/year) 19 November 2001 (19.11.01)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference ULE04.00 PCT	
International application No. PCT/IB00/01237	International filing date (day/month/year) 01 September 2000 (01.09.00)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address JDS UNIPHASE CORPERATION	State of Nationality FR	State of Residence FR
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name	<input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address NORTEL NETWORKS OPTICAL COMPONENTS (SWITZERLAND) GmbH Binzstrasse 17 CH-8045 Zürich Switzerland	State of Nationality CH	State of Residence CH
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Ning XU
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 28 June 2001 (28.06.01)	
International application No. PCT/IB00/01237	Applicant's or agent's file reference ULE04.00 PCT
International filing date (day/month/year) 01 September 2000 (01.09.00)	Priority date (day/month/year) 21 September 1999 (21.09.99)
Applicant MOHRDIEK, Stefan	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:07 April 2001 (07.04.01)☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Pascal Piriou Telephone No.: (41-22) 338.83.38
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## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>ULE04.00 PCT</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IB 00/01237</b>	International filing date (day/month/year) <b>01/09/2000</b>	(Earliest) Priority Date (day/month/year) <b>21/09/1999</b>
Applicant <b>JDS UNIPHASE CORPORATION et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01237

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01S5/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 841 797 A (BERRANG PETER G ET AL) 24 November 1998 (1998-11-24) abstract column 5, line 42 - line 61; figure 4 ----	1,2,5-11
A	US 5 721 636 A (GILES CLINTON RANDY ET AL) 24 February 1998 (1998-02-24) abstract column 2, line 16 - line 19 ----	1
A	US 5 651 018 A (LANG ROBERT J ET AL) 22 July 1997 (1997-07-22) figures 24,25 -----	1-4

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

Date of the actual completion of the international search

29 November 2000

Date of mailing of the international search report

05/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Galanti, M

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 00/01237

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5841797	A	24-11-1998	US 5589684 A	31-12-1996
			US 5485481 A	16-01-1996
			US 6041072 A	21-03-2000
			AU 2782795 A	25-01-1996
			CA 2191190 A	11-01-1996
			WO 9600997 A	11-01-1996
			EP 0767979 A	16-04-1997
			JP 10502215 T	24-02-1998
			US 5659559 A	19-08-1997
			US 5715263 A	03-02-1998
			US 6044093 A	28-03-2000
US 5721636	A	24-02-1998	US 5563732 A	08-10-1996
US 5651018	A	22-07-1997	US 5537432 A	16-07-1996
			US 5392308 A	21-02-1995
			US 5914978 A	22-06-1999
			US 5592503 A	07-01-1997
			US 5499261 A	12-03-1996
			US 5602864 A	11-02-1997
			US 5864574 A	26-01-1999
			US 5696779 A	09-12-1997
			US 5703897 A	30-12-1997
			US 5894492 A	13-04-1999

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 30 JUL 2001

WIPO PCT

Applicant's or agent's file reference <b>ULE04.00 PCT</b>		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. <b>PCT/IB00/01237</b>	International filing date (day/month/year) <b>01/09/2000</b>	Priority date (day/month/year) <b>21/09/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>H01S5/14</b>		
Applicant <b>JDS UNIPHASE CORPORATION et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand <b>07/04/2001</b>	Date of completion of this report <b>26.07.2001</b>
Name and mailing address of the international preliminary examining authority:  <b>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</b>	Authorized officer  <b>Gnugesser, H</b>  Telephone No. +49 89 2399 2526 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01237

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-11 as originally filed

**Claims, No.:**

1-11 as originally filed

**Drawings, sheets:**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/IB00/01237

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**



**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:  
D1: US 5 841 797 A
  
2. Document D1, which is considered to represent the most relevant state of the art, discloses (cf. fig. 4 and col. 5, lines 42 - 61) a laser source from which the subject-matter of claim 1 differs by the technical features of the characterizing part of claim 1.

The problem to be solved by the present invention may therefore be regarded as designing a laser source having a simple layout and providing a stable output.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

In prior art solutions for the above problem normally only one external cavity is foreseen. Document D1 discloses the use of two Bragg gratings in a tandem configuration in the guide means (see fig. 4). These two gratings are, however, related to two different laser diode sources with two different output wavelengths. Therefore, each laser diode source to be stabilised has only one external cavity. In contrast the laser of claim 1 has at least two external cavities which are related to it. From both of these external cavities light is reflected back to the single laser of claim 1 in order to operate the laser in a coherence collapse mode. The available prior art does neither disclose nor indicate the use of a plurality of external cavities related to a single laser in order to solve the problem posed. It is especially not indicated that a laser configuration according to claim 1 not only improves the laser performance when used as a pumping source, but also has a size reduction effect on the length of the external cavities when compared to prior art systems used in order to solve the above problem.

3. For the reasons already pointed out in Item V.2 above the subject-matter of claim 10 is also novel and involves an inventive step.
4. Claims 2 - 9, 11 are dependent on claim 1 and 10 respectively and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**Re Item VIII**

**Certain observations on the international application**

1. It is clear from the description (page 5, lines 19 - 24; embodiments 1 - 3) and claim 1 (every independent claim contains all technical features essential to the definition of the invention Art. 6 PCT & Rule 6.3(b) PCT) that the following features are essential to the definition of the invention:  
The external cavities are arranged and dimensioned such that the assembled laser operates in a coherence collapse mode.  
Since independent claim 10 does not contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.
2. The term "essential in a coherence collapse mode" in claim 1 is not clear (vague term; no-well recognised meaning of the term "essential" as far as the degree of coherence collapse is concerned). The term leaves the reader in doubt as to the degree of coherence collapse to which it refers, thereby rendering the definition of the subject-matter of said claim unclear (Article 6 PCT). Therefore, the limitation which is intended by the use of the term "essential" is not completely clear.
4. In claim 10 it is not clear if the term following the word "preferably" should limit the

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB00/01237

subject-matter of claim 10. Normally terms like "preferably", "for example" etc. have no limiting effect on the scope of the a claim; that is to say, the feature following any such expression is to be regarded as entirely optional.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01237

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01S5/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 841 797 A (BERRANG PETER G ET AL) 24 November 1998 (1998-11-24) abstract column 5, line 42 - line 61; figure 4 ---	1,2,5-11
A	US 5 721 636 A (GILES CLINTON RANDY ET AL) 24 February 1998 (1998-02-24) abstract column 2, line 16 - line 19 ---	1
A	US 5 651 018 A (LANG ROBERT J ET AL) 22 July 1997 (1997-07-22) figures 24,25 -----	1-4



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

29 November 2000

Date of mailing of the international search report

05/12/2000

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Galanti, M

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internatic Application No

PCT/IB 00/01237

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5841797 A	24-11-1998	US 5589684 A	31-12-1996
		US 5485481 A	16-01-1996
		US 6041072 A	21-03-2000
		AU 2782795 A	25-01-1996
		CA 2191190 A	11-01-1996
		WO 9600997 A	11-01-1996
		EP 0767979 A	16-04-1997
		JP 10502215 T	24-02-1998
		US 5659559 A	19-08-1997
		US 5715263 A	03-02-1998
		US 6044093 A	28-03-2000
US 5721636 A	24-02-1998	US 5563732 A	08-10-1996
US 5651018 A	22-07-1997	US 5537432 A	16-07-1996
		US 5392308 A	21-02-1995
		US 5914978 A	22-06-1999
		US 5592503 A	07-01-1997
		US 5499261 A	12-03-1996
		US 5602864 A	11-02-1997
		US 5864574 A	26-01-1999
		US 5696779 A	09-12-1997
		US 5703897 A	30-12-1997
		US 5894492 A	13-04-1999